MARCH 1952

FIREMEN

FIFTY-SIXTH YEAR • NATIONAL FIRE PROTECTION ASSOCIATION

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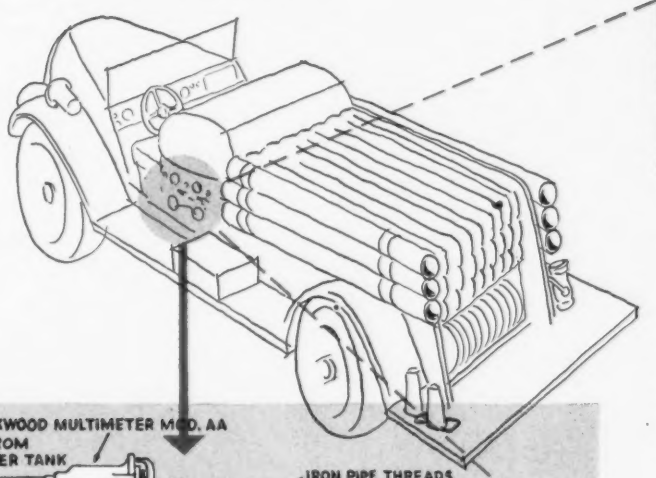

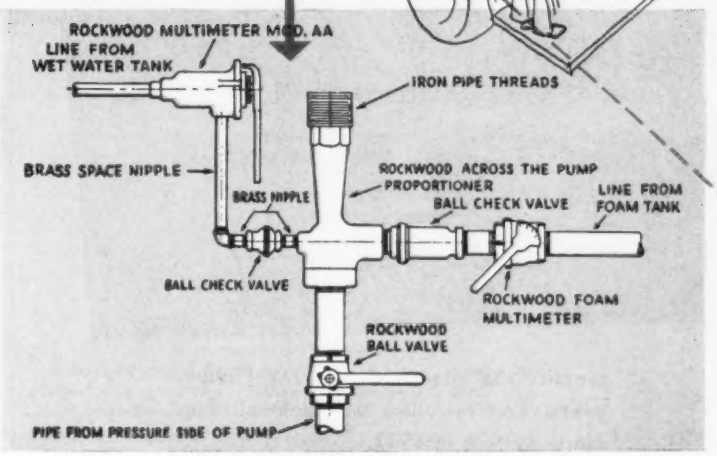

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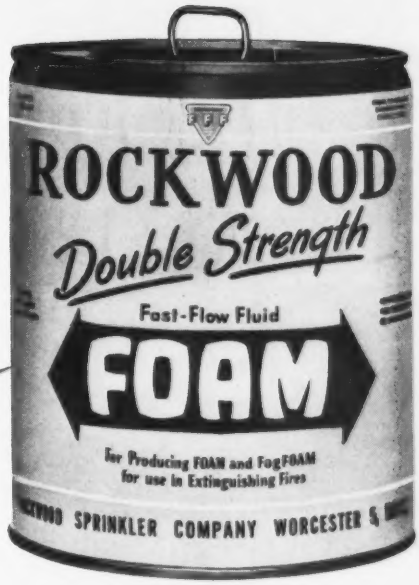

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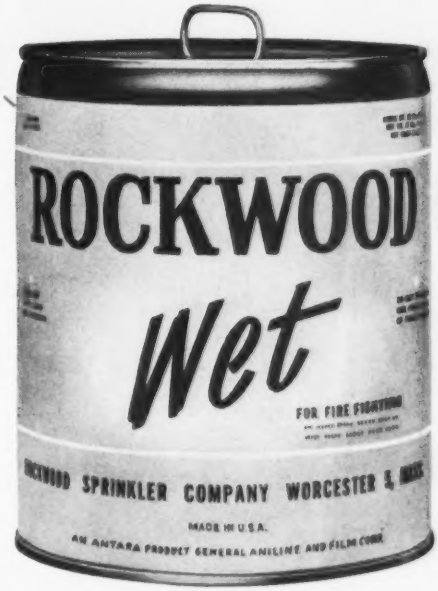

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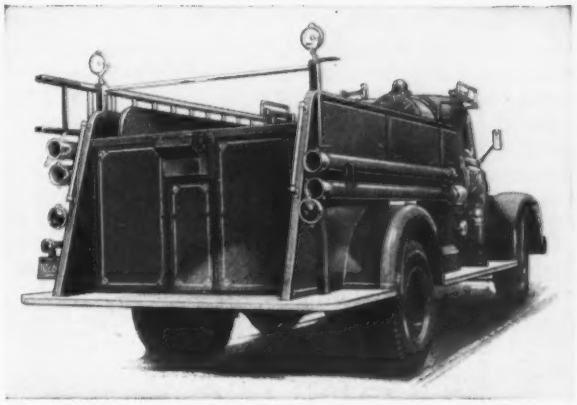

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Firemen

Volume 19 Number 3

WARREN Y. KIMBALL, EDITOR
PAUL R. LYONS, ASSOCIATE EDITOR
HENRY S. GERE, ADVERTISING MANAGER

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NATIONAL FIRE PROTECTION ASSOCIATION

A VOLUNTARY NON-PROFIT ORGANIZATION
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Contents for March 1952

	Page
Let's Stop These Fire Deaths, by NFPA General Manager Percy Bugbee	8
Emergency Pipe Lines, by Warren Y. Kimball, Editor of NFPA FIREMEN	9
Testing Fire Hose, by E. N. Davis, Underwriters Laboratories	12
Scenes from the 24th FDIC	14
Industrial Fire Protection	16
Fires in the News	17
Operating Fire Department Pumpers	18
Mattydale Hose Lay	19
Letters to the NFPA	20
Institute on Arson Investigation at New York University	22
Fire Schools	23
NFPA Annual Meeting	23
Radiation Monitoring	24
Membership Report	25
Short Course on Fire Hazard Control	26
Philadelphia's Mobile Radio Center	27
What's New in Fire Equipment	28

"New" Hazard Hysteria

From time to time there appears to be a national hysteria over some supposedly new fire hazard. The latest of this sort to gain extensive publicity in the popular press has been that of "brushed rayon" clothing. NFPA Members were not taken by surprise as this subject had been adequately treated in NFPA publications several years ago. (See NFPA *Fire News* for February, April and June, 1945, and February 1947.) However, due to the aroused public interest, the NFPA Committee on Wearing Apparel is being organized, with Joe R. Yockers, State Fire Marshal of California, as Chairman.

Admittedly, wearing apparel that burns "with almost explosive rapidity" is something to be feared. However, it must be kept in mind that the job of the fire service is to protect lives and property against all hazards. The more common hazards and careless acts such as smoking in bed, leaving children alone in the house, and misuse of electricity, cause far greater toll in lives lost. Similarly, while fire prevention authorities must be alert for special hazards that can cause devastating fires such as the ammonium nitrate fertilizer fire that exploded in Texas City, and the hydrogen peroxide that resulted in the devastating explosion in Los Angeles several years ago, most of the hazards arise from elementary causes as explained by NFPA General Manager Percy Bugbee in the article appearing on page 8 of this issue.

Accidents En Route

Below is a picture of Rescue Squad Truck No. 1 of the District of Columbia Fire Department following a collision with a fuel oil truck while responding to an emergency (non-fire) call. The driver and officer of the squad company were thrown from the truck and seriously injured. Fortunately, no fire ensued, or lives might have been lost. It was reported that the fire department vehicle was proceeding against the traffic lights when the accident occurred.

One of the greatest hazards to fire fighters is the danger of accidents en route to alarms. Apparatus disabled in accidents is unable to perform its intended mission, may also be placed out of service for lengthy periods of time, if not permanently, with the services of experienced fire department personnel lost to the community.

At the present time, fire apparatus is a very scarce and critical commodity. There is a real shortage, and most materials going into apparatus manufacture are seriously curtailed and allocated by government regulations. Let us all take the best possible care of the apparatus we now have in service and operate that apparatus on the road at speeds consistent with the traffic conditions and with safe driving.

Cover Picture

Richard E. Vernor, Chairman of the NFPA Board of Directors and Manager, Fire Prevention Department of the Western Actuarial Bureau, was made Honorary Chief of the Memphis Fire Department. The award was given during the 24th Fire Department Instructors' Conference. This month's cover picture shows the presentation being made by Chief John C. Klinck of the Memphis Fire Department. For further details on the FDIC see pages 14 and 15 of this issue.

Let's Stop These Fire Deaths!

By Percy Bugbee, General Manager, National Fire Protection Association

From an address given at the 24th Fire Department Instructors' Conference, Memphis, Tennessee, January 8, 1952

PRESENT estimates indicate there are 5,000 outbreaks of fire every day in the year of which about 1,600 occur in buildings. The great majority of these fires are due to very simple, readily understood causes. One has only to observe the daily record of fires in any large city to realize this.

To give an example, I took a look at the fire record prepared by Frank McAuliffe's Insurance Patrol in Chicago for one recent day. There were 80 outbreaks of fire recorded on this particular day. Of these, 27 were due to careless disposal of cigarettes or matches, 14 were due to accumulations of rubbish near heaters or open flames, 11 were due to defective furnaces or chimneys, 9 were due to the careless handling of gasoline or kerosene, 8 were due to portable oil stoves, 6 were due to defective electrical wiring, 4 to gas burners, and only one to a special hazard. If you think this record is not typical, examine the record in any big city for any day.

When it comes to deaths and injuries due to fire, the same general situation applies. Every day our Fire Record Department receives reports of local tragic incidents similar to these:

In a small town in Vermont a father came into his home late one evening intoxicated and fell asleep in a chair with a cigarette in his hand. When the cigarette ignited his trousers, he aroused sufficiently to leave the house and fall asleep outside. The chair had also ignited and his four children were burned to death.

In a city in New Jersey a family of seven were living in a building about the size of a two-car garage constructed of packing crates and other waste material and an overheated stove set fire to this structure and killed the entire family of seven. In a small town in Michigan a mother poured kerosene on the coal fire in the kitchen and the resulting explosion burned to death the entire family of nine children and the mother and father.

These are not unusual or isolated cases. Such incidents happen all the time and they are due to the very elementary things that cause fires.

For a good many years we have been struggling with this subject of reliable fire casualty statistics. The NFPA Committee on Fire Casualty Statistics has come up with a standard form for reporting fire casualties. It is being tried out at the present time in a number of states. We hope to persuade all of the states to use this form so that in course of time reliable fire casualty statistics may be forthcoming. Your help in getting recognition of this form and using it in your own states and communities would be very much appreciated. The NFPA will be very glad to send copies of the form to anyone interested.

HOW can we attack this important problem? How can we effect a mass education of all of the people so that as part of their daily routine they will not commit acts of carelessness that result in death and destruction?

Rather obviously, a basic consideration is the education of the children in the schools in the simple principles of fire prevention. The National Education Association has been tackling that problem in recent years with conspicuous success.

Another new and growing and very important force in the overall attack upon fire deaths is the campaign initiated by last year's President Alderson of the International Association of Fire Chiefs, through the Fire Prevention Committee of that association, headed by Jay Stevens of San Francisco.

Mr. Stevens has recognized that one very simple, most effective and inexpensive method of attacking this problem is through the inspection of all dwellings in a community by fire department personnel. This approach is not new. It has been tried in several hundred cities, in some as much as twenty to twenty-five years ago. Wherever it has been tried it has shown a marked reduction in dwelling fires with subsequent reduction in loss of life.

A third approach, and also one that has been tried with great success in numerous individual communities, is the inspection of homes for simple fire hazards through home inspection blanks distributed to the children in the schools. Here again we have a device that is simple, inexpensive and effective. Wherever it has been done on a consistent basis it has worked.

A fourth but relatively new mass attack upon this problem of fire deaths has been the initiation through the sponsorship of the NFPA and under the direction of the Advertising Council of America of a year-round campaign of home fire prevention through all of the existing publicity media such as the newspapers, the radio and television stations, magazines, and house organs. While this campaign has only been going about a year, the Advertising Council people tell us that it has had major acceptance by advertising media and that it is now reaching regularly a very substantial proportion of our population with simple information about the things that cause deaths and injuries from fires.

WE have now available, therefore, these movements and these tools that we know will do this job. We must find means of utilizing them effectively. The great American Red Cross has realized through its disaster relief program that a substantial majority of disasters are fire disasters. Certainly we should take advantage of the widespread community organization of Red Cross chapters to gain acceptance of fire prevention programs.

There are other national groups that we have yet to reach effectively. I am not suggesting for a moment that we should not proceed in every way to improve our standards of fire protection engineering, to improve our fire training programs, our fire department operations and our fire prevention activities in more complicated fields.

However, it seems to me that if we are to perform the greatest public service then we must constantly hammer away at the simple things that cause the greatest toll of death and destruction by fires.

Emergency Pipe Lines

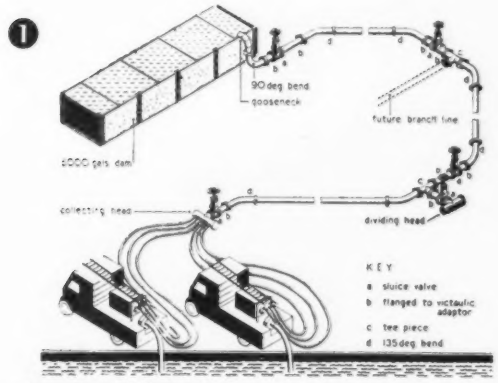
By Warren Y. Kimball, Editor of FIREMEN

From an address given at the 24th Annual Fire Department Instructors' Conference at Memphis, Tennessee.

AMERICAN cities have experienced water supply failures due to broken mains resulting from floods, fires, earthquakes, and other causes. It has long been recognized that 2½-inch fire hose cannot efficiently carry large quantities of water for appreciable distances. Where large flows are needed in emergencies, pipes of substantial diameters are needed.

Civil fire defense has focused attention upon possible emergency situations that are perhaps equally applicable or important for peacetime security. The use of portable pipe lines for emergency water distribution is but one of these situations. Recently, a number of tests and demonstrations have shown the practicability and the limitations of portable pipe lines for water transport. The British had considerable experience both with pipe lines and large diameter hose in connection with their fire defenses during World War II. This has been described in detail in their official, well illustrated, Manual of Firemanship.

A few pictures of pipe-line operations are believed to sum up the information available to date, although there have been several exercises with pipe lines in other locations giving additional field experience to fire departments and civil defense forces.



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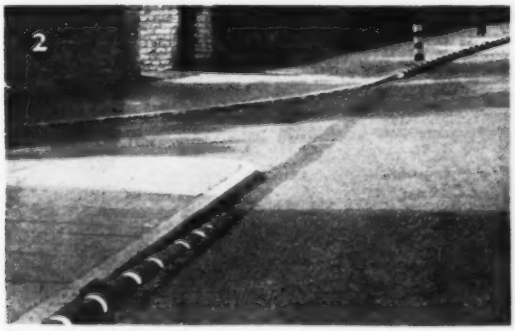
(1) The British employed 6-in. steel piping laid in advance of anticipated air attacks. Sections were joined with exterior gaskets and clamped fittings. Ample tees, elbows, gates, and dividers for hose outlets were provided. In general, as shown in the illustration, the pipe lines were used to fill street tanks as shown and other reservoirs such as basements of bombed-out buildings. Pipe lines were used on alternate streets from those containing regular underground water mains to avoid loss of both water sources from effects of a single HE bomb.



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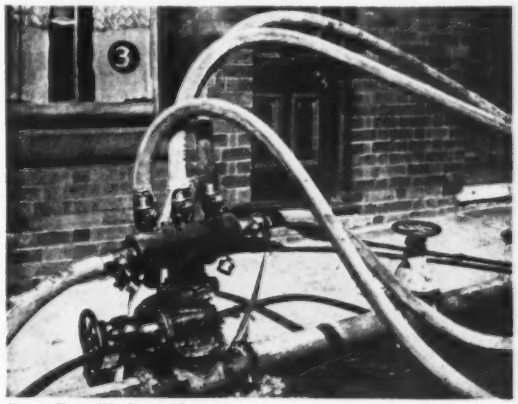
(2) In Britain freezing was not a problem with above ground emergency water mains as it might be in large areas of the United States and Canada. The pipes were laid under street intersections as shown. Otherwise hose bridges were used.



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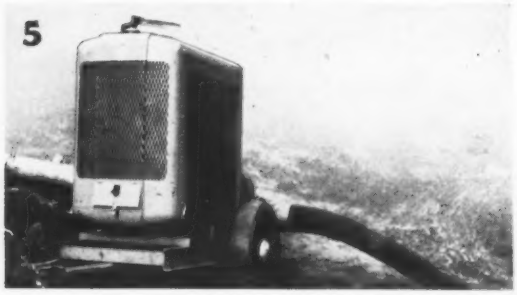
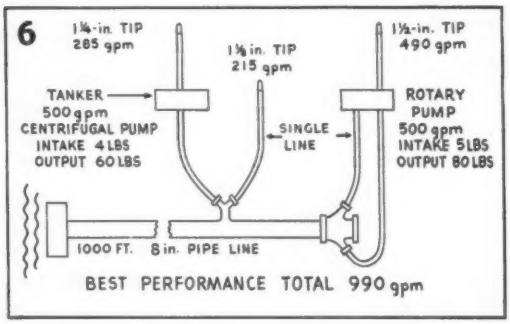
(3) A British arrangement of discharge manifolds and extra tees and gates were installed to permit hose line connections as needed. Official instructions stated "Use should be planned and pump spacing arranged to insure delivery of not less than 1,000 gpm (1200 U. S. gpm) at 100 pounds pump pressure." This is the pressure at which British pumps are rated for capacity.

(4) In October, 1950, several Connecticut fire departments met at Simsbury and conducted a series of tests with agricultural irrigation pipe built by the Shepard Irrigation Equipment Company of Ellington, Connecticut. This pipe was 8-in. diameter and of light weight alloy. Six-in. diameter pipe is also available. Two men could easily carry two 20-ft. sections. Snap couplings automatically tighten under pressure.

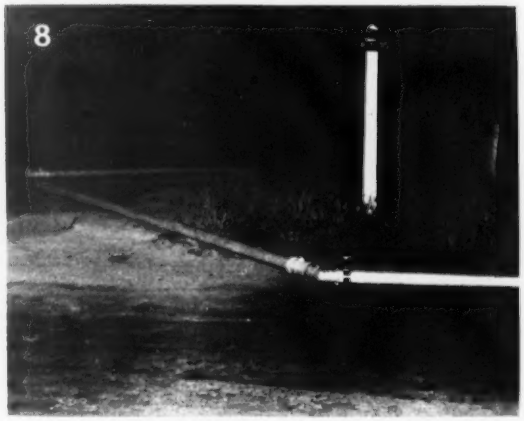


(5) Water was pumped from a river by a 1,000 gpm Gorman-Rupp irrigation pump, using a 6-in. suction and discharging at pressures ranging from 55 to 65 lbs. In actual water horsepower this pump was perhaps equivalent to a 500 gpm fire department pump. However, it served to deliver enough water for four 2½-in. lines at low pressure. In a real fire emergency great flows would be needed and arrangements should be made for pumping more water through the pipe.



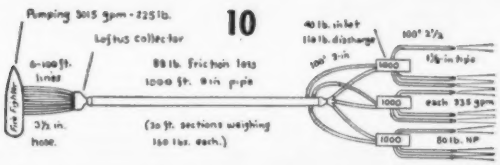
(6) Diagram shows the layout of pipe and connections for supplying hose and pumpers. The Hartford, Connecticut Fire Department provided a 4½-in. outlet to supplement two 2½-in. outlets. Elevations are not shown but the suction lift was about 6 ft. and the water was pumped up hill perhaps 10 or 12 ft. There was one 90° angle in the pipe line.

(7) At the end of 1,000 ft. of pipe, at Simsbury, two 2½-in. outlets and one 4½-in. pumper connection were used to supply four direct streams from the irrigation pipe. Total flows varied from 907-956 gpm. Subsequently two 500 gpm pumpers were employed for the same streams and the discharge was stepped up to 990 gpm. However, full advantage was not taken of the pumpers because the hose lines were too short to utilize the pressure characteristics of the pumps. This was a common failure in at least three pipe-line demonstrations discussed here and other water-throwing demonstrations in connection with civil defense. It occurs because of failure to make significant use of the fire department pumpers. In each case, except one, water was received by the pumpers at about 40 lbs. The discharge lines were too short to permit the pumpers to develop full working pressures. In other words, there was a lack of correlation between pipe line output and pumps. The fire department pumpers cannot get more water than the pump or pumps at the source can push through the pipe line but they can increase the pressure if the proper fire stream layouts are employed. One failure observed was the attempt to obtain both direct streams and pumper streams from adjacent outlets. Of course, when the pumper took more water, the residual pressures fell making the direct streams almost worthless.



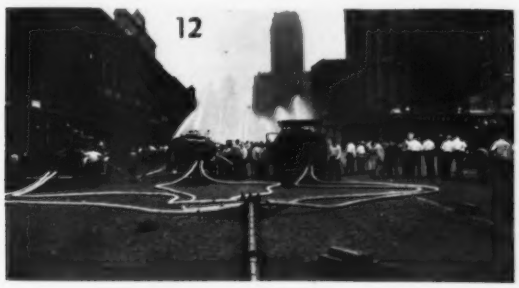
(8) A pumper relay, using 4-in. aluminum irrigation pipe, was demonstrated at South Manchester, Connecticut, May 17, 1951, by the two fire departments of the Town of Manchester for which Ex-Chief Albert Foy serves as fire defense director. The aluminum pipe was obtained by Chief Schaub of South Manchester from farmers in the town. Some 3½ miles of this pipe are available to the department on call. Two miles of this is 6-in. pipe. In a night demonstration a 750 gpm American-LaFrance pumper took suction from a reservoir and auxiliary firemen following a flat bed truck snapped the piping together about as fast as they could walk, laying 1,080 ft. in seven minutes. The picture shows elbows at a street intersection.

(9) A 500 gpm OCD pumper was connected to the end of the pipe line and supplied a 1½-in. tip on a turret nozzle with a flow of 450 gpm. The 750 pumper was working at 150 pounds and pressure loss was 10 lbs. per hundred feet. Unfortunately, because of other civil defense exercises, sufficient time was not allowed to develop the full capability of the pipe line. For example, the 750 pumper operating at pressure should have been able to supply a greater quantity of water for a much longer distance. The OCD pumper had very little work to do in connection with the stream. Very nearly the same discharge would have been obtained without the use of the OCD pump as only 100 ft. lines were used to supply the gun and about 50 lbs. was available at the end of the pipe line. However, had longer lines been needed the OCD pump might have been some use although the 750 pumper at the reservoir could have supplied the same flow at substantially greater pressure. It should be possible to operate somewhere near the capacity of the pumps in these operations. After all, the purpose of using pipe lines is to get volumes greater than that possible with ordinary fire hose.

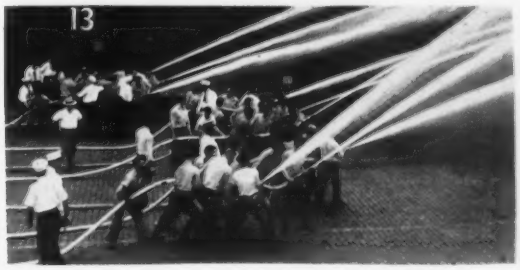


(10) On August 12, 1951, the fire department of New York City tested a 1,000-ft. layout of 8-in. portable steel piping supplied by the Albert Pipe Supply Company of Brooklyn, with special exterior couplings manufactured by the Victaulic Coupling Company of America, 30 Rockefeller Plaza, New York. These couplings appear very similar to those employed by the British in their war-time emergency water supplies. The 20-ft. sections of pipe weighed 160 lbs. each and 1,000 ft. were connected by probationary firemen. The diagram shows the layout employed with six lines of 3½-in. hose from the fireboat firefighter connected to a Loftus suction collector at one end of the pipe.

(11) The pipe was unloaded from a truck, coupled, and streams were in operation in 21 minutes. This test is the only one commented on here that developed flows in excess of 1,000 gpm. Large flows might be needed under emergency conditions. In general, war-time British practice was to use pipe lines to fill cisterns that could be used at a desired rate with pumpers at suction rather than for direct hose streams. Also, if used to supply pumpers directly, pipe lines may concentrate rather than distribute water. An 8-in. pipe line, if used to fill storage containers, can handle 1,440,000 gallons per day if the flow is 1,000 gpm; whereas if used only at one spot during a fire, use may be very limited, even if invaluable. Where the same 1,000 ft. of pipe is used to fill emergency reservoirs in advance of a fire, it would be possible to fill a dozen reservoirs in a 1,000-ft. radius with perhaps 100,000 gallons each 24 hours. An 8-in. pipe line can provide more than a million gallons a day if the water is stored in advance of the emergency. This water can be used during the emergency by as many pumps as can obtain suction. However, the flows from even an 8-in. pipe line would prove very limited under emergency conditions. Flows in excess of 5,000 gpm are not unexpected in peace-time fires. Where water is stored in advance in well distributed containers, there is safeguard against failure of men, pipes, pumps, and suction facilities during an emergency.



(12) At the other end of the pipe in the New York City tests six outlets permitted use of six 3-in. lines to supply three 1,000-gallon pumpers. The Loftus suction collector is a six-way siamese designed by Chief Peter Loftus of the New York Fire Department after models observed in Great Britain. It is used to supply 1,000 gpm pumpers from several supply lines to permit flexible operation as in tunnel and bridge fires where both mobility and full pump supply is needed. However, as pointed out in the June, 1951, FIREMEN Magazine, there are ways of accomplishing the same purpose with standard pumper siamese equipment.



(13) Each of these supplied three 2½-in. lines with 1⅛-in. tips discharging at 80 lbs., giving 1,005 gallons from each pumper at 110 lbs. Here again it would have been possible to supply longer discharge lines because the pumpers were receiving their supply at 40 lbs. and discharging only at 110 lbs. so that substantially greater discharge pressure would have been possible.

(14) On September 29, 1951, at the Annual Firemen's Field Day at Simsbury, Connecticut, further tests were made of the 8-in. irrigation pipe, again supplied by a 1,000 gpm Gorman-Rupp irrigation pump. A 750 Class A Mack pumper was attached to the 4½-in. connection at the end of the pipe line and two direct streams were attached to two 2½-in. direct outlets on the pipe as well as two lines from the pumper. The pumper obtained ample suction supply but the direct streams were poor because of the low pressure characteristics of the irrigation pump which could not develop over 65 lbs. at the river. Accordingly, all discharge lines were shifted to the 750 gpm pump. These included a 1½-in. tip, a 1¼-in. tip, and two 1⅛-in. tips. The pumper discharging at 75 lbs. and taking all water available supplied 1,451 gpm. Obviously, a better water supply at the river, as in the New York test where a fireboat was employed, would have permitted greater delivery at the end of the pipe line. Had two 750 gpm pumpers been available, the discharge pressures could have been increased considerably. It is interesting that in pounds of water handled, the pump output was almost the same as a 750 pumper delivering capacity at 150 lbs. In this connection it may be interesting to refer to a description of a 1,000 gpm British Merryweather pumper appearing in NFPA FIREMEN for September, 1950. This delivers 1,000 Imperial gallons at 100 lbs. This is about 1,200 U. S. gallons but in work performed is about the same as 1,000 U. S. gpm at 120 lbs. or 750 U. S. gpm at 150 lbs.

A NUMBER of fire chiefs have expressed interest in the possibility of obtaining a few thousand feet of portable pipe line for emergency use. It might be well for area fire defense directors to consider having several miles of such pipe with suitable fittings on hand. In many agricultural states, such as Connecticut, the pipe is already available on loan from public-spirited farmers.

Testing Fire Hose

By E. N. Davis, Underwriters' Laboratories, Inc., 207 E. Ohio Street, Chicago, Illinois

From an address entitled "That You May Squirt Correctly," given at the 24th Fire Department Instructors' Conference, at Memphis, Tennessee, January 8–11, 1952

THIS is in no way an effort to sell UL labeled hose and to criticize unlabeled hose. Much of the hose which does not bear our label is giving good service in putting out fires, which, after all, is what interests us. If you have had experience with one particular kind of hose and found it satisfactory there is no reason why you should not continue to use it.

Many fire-fighting authorities like to have their hose tested by an impartial laboratory. The most efficient way for you to obtain this service is to require that the hose you buy must be labeled, no matter what kind or brand you order. The label does not represent a grade of hose, but represents an inspection service. The label is a report that the hose has been tested and meets requirements of the Underwriters' Laboratories. Any make or grade of hose may be tested. If it meets our standard, it may be labeled.

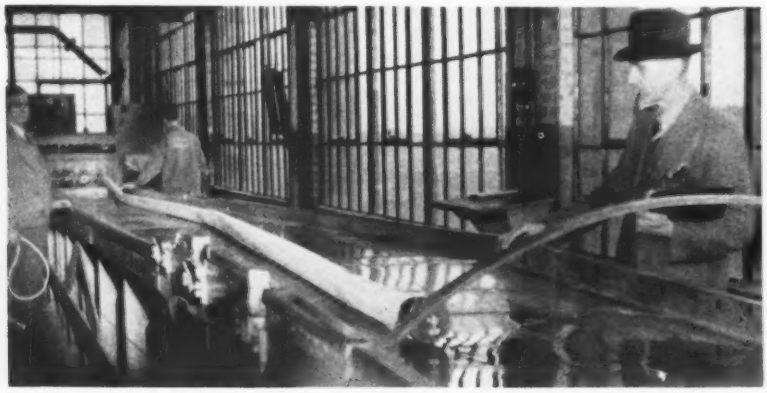
Every length of hose inspected by us bears our label, and we do not inspect hose unless it is to be labeled. Never accept any statement that hose "meets Underwriters' standard" or "the manufacturer is approved by Underwriters."

If a length of hose has been inspected by us and has been found to meet our requirements, it bears our label. If any length does not bear the label, it has not been passed by our inspection.

If a municipality desires a more detailed report, this can be arranged by notifying us when a contract for hose is placed. We can and will arrange to send the municipality a photostatic copy of our factory inspection records and Chicago countercheck tests on the very lengths purchased, with each length identified by label number.

IN order to assist municipalities in ordering labeled hose, we have available a request for bids incorporating specifications corresponding to requirements of our Standard for Cotton Rubber-Lined Fire Hose. Underwriters' Laboratories, Inc., is named as the inspection agency for the municipality. If you wish to use this form, write to us and all the copies you need will be sent. Copies of our Standard, which gives our test methods as well as requirements, are also available without charge.

Each UL label issued bears a serial number, and factory inspectors keep records of these numbers, as assurance of seeing and testing every length to which a label is attached. An Inspector entering a plant first sees the lot of hose offered for labeling, and determines that the labeled lengths correspond to the labels issued. Each length is then subjected to a hydrostatic test of 400 psi for double-jacketed hose or 300 psi for single-jacketed hose.



This shows the hydrostatic test of a 50-ft. length of hose. The hose is not yet full of water and must be filled before raising the pressure. Notice how the test table slopes upward so that air goes out as water is admitted.

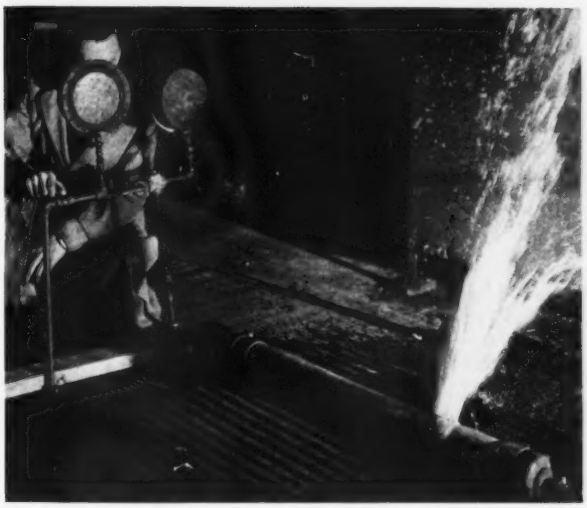
For this test, one coupling of the hose is attached to the source of water supply. The other coupling is closed with a cap or plug provided with a pet-cock to allow the air to escape while the hose is being filled with water. The hose is laid out straight on a test table which slants upward away from the water source.

Water is admitted into the hose, and since the hose slopes upward, the water pushes the air ahead of it, out of the hose. This is important, since if air is left in the hose it may cause real damage in case of a burst. When the hose is completely filled with water the pet-cock is closed and the pressure is raised to 10 psi. All initial measurements are taken while the hose is under this pressure. Remember that, when you are comparing your measurements with the lengths given in our reports.

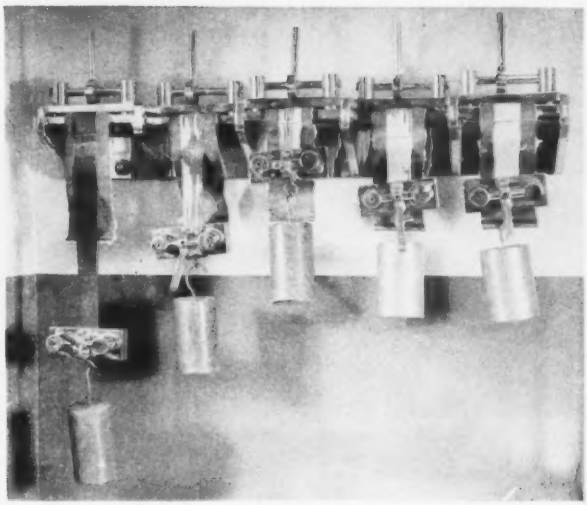
Hose is measured under 10 psi pressure to be sure that the hose is in a standard reproducible condition. The position of the hose with respect to twist is noted. The inspector examines the hose for defects in weaving, such as knots in warp threads, loose ends of cotton, and skips in warp threads.

After these observations, the pressure is raised to either 300 or 400 psi, depending on the number of jackets, and observation made of elongation, twist, warp and rise. Elongation is the increase in length of the hose from that at 10 psi to that at the test pressure. The twist is the number of turns which the hose makes during increase in pressure. It is required that the final twist must be in a direction to tighten the couplings, and even this is limited. The hose must not warp more than 20 in. from a straight line drawn from coupling to coupling. Double-jacketed hose is not allowed to show any rise from the test table. Single-jacketed hose may show a limited amount of rise. The hose must withstand the pressure without leakage in the hose or at the couplings, and without breaking any thread in the jacket.

(*Please turn to page 26*)



(Above) Mr. Davis entitles this picture "How Not to Conduct a Burst Test." He posed this for a "picture magazine" without the benefit of a tarpaulin or other form of protection. Burst tests necessitate ample protection for the operator. Mr. Davis states: "If that were a 50-foot length instead of a 3-foot sample that coupling could deal a blow that would smash bones like toothpicks."



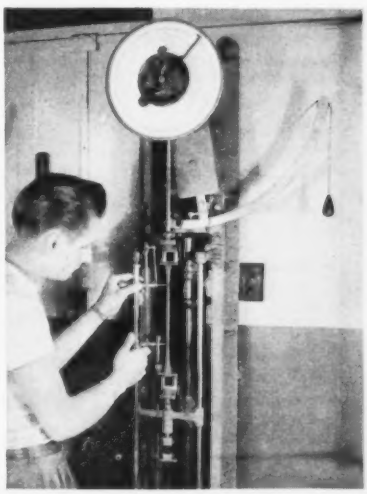
(Above) The "friction" or "adhesive" test determines whether the rubber lining adheres tightly to the cotton jacket so that water pressure will not loosen or wrinkle it, thus obstructing flow. Strips of rubber are pulled loose from samples of hose and subjected to 10-pound loads as shown above. Separation caused by weight is measured. Standard requires rate of separation to be not greater than 1 in. per minute.

(Above) Most of the aging of rubber is due to reaction with oxygen of the atmosphere. Proper compounding will protect the rubber to slow down absorption of oxygen. To test amount of protection of the lining, samples are exposed to pure oxygen under a pressure of 300 psi and at a temperature of 158 degrees F. Specimens are subjected to strength and elongation tests after exposure to see how much the rubber has deteriorated. Container used for this test must be a heavy steel cylinder called a "bomb." It has a capacity of 75 cu. in. and is made of special high tensile steel with walls more than ½-in. thick. Here an operator is putting specimens of lining into a "bomb" before starting test.

(Right) Specimen being subjected to strength and elongation tests. Each end is held by a grip which tightens as the load increases. Operator follows marks on hose with pointers to measure how far specimen stretches before breaking. Knowing breaking load and the cross section, he can calculate tensile strength. Standard requires that rubber must show a tensile strength of at least 1200 psi and specimen must stretch until marks originally 2 inches apart are at least 10 inches apart before specimen breaks.

(Right) Apparatus used to conduct a bursting strength test of fire hose. The hose is enclosed in a stainless steel cabinet, with a bullet-resisting glass window in the top.

(Above) Operator immerses "bomb" in a water bath to secure elevated temperature. Bath is electrically heated and equipped with a stirrer to keep the temperature uniform throughout the bath. Dual thermostats maintain the temperature within one degree of 158 degrees F.



(Below) The thickness of the specimen is determined by means of a dial micrometer, which indicates thickness to the nearest 0.001 in. With width and thickness known, the cross-sectional area can be calculated. Micrometer also compares thickness of lining with requirement of Standard.

Scenes from the 24th FDIC

Memphis, Tennessee, January 8-11, 1952

Photos by Fred O. Loenneke, Memphis Fire Department, and supplied to FIREMEN *by Chief John C. Klinck, Memphis Fire Department, and Host Chief of the Fire Department Instructors' Conference.*

THE growing popularity of the Fire Department Instructors' Conference was emphasized by the record attendance and active program of the 24th FDIC held at Memphis, Tennessee, January 8–11, 1952. Sponsored jointly by the Memphis Fire Department, headed by Chief John C. Klinck, and the Fire Prevention Department of the Western Actuarial Bureau under Manager Richard E. Vernor (Chairman of the Conference and also Chairman of the NFPA Board of Directors), the 4-day session had an attendance of 1,119 members of the fire service.

The Memphis Fire Department again gave a remarkable example of hospitality and organization in handling the numerous details of the Conference. Members of the Department served luncheon and furnished entertainment to guests registered for the conference, in addition to handling other necessary local arrangements for the program.

More than 100 representatives of the fire service from 32 states and the District of Columbia took an active part in the addresses and demonstrations.

Chairman Vernor and a committee representing the City of Memphis delivered welcoming addresses to the guests of the Conference. Leonard C. Lund, Member of the NFPA Board of Directors and of NFPA Committees on Civil Fire Defense, Farm Fire Protection, and Membership, and Deputy Insurance Commissioner of Minnesota, gave the opening address.

At a luncheon on the first day NFPA General Manager Percy Bugbee was introduced by Curtis R. Welborn, President, Underwriters' Laboratories, Chicago, Illinois, and gave an address on the means of attacking the problem of minimizing fire loss to life and property. (See page 8 of this issue of FIREMEN.)

Greetings from the City of Memphis were extended to the Fire Department Instructors Conference by the above group. (Left to right) Monsignor M. F. Kearney, who gave the opening invocation; Vice-Mayor and Fire and Police Commissioner Claude A. Armour; Chief John C. Klinck, Memphis Fire Department; Lynn Aaron, Memphis Junior Chamber of Commerce; Frank Zito, Memphis Chamber of Commerce; and George E. Bowdry, Chamber of Commerce Fire Prevention Week Chairman.

The staff of the FDIC pose before their portraits which were prominently displayed on the curtain of the dining auditorium. Left to right: Harry H. Wolff, Field Officer, Fire Prevention Department, Western Actuarial Bureau, and Secretary of the FDIC; Chief Klinck, Host Chief; Richard E Vernor, Manager, Fire Prevention Department, Western Actuarial Bureau, Chairman, NFPA Board of Directors, and Chairman of the FDIC; Emmett T. Cox, Field Officer, Fire Prevention Department, Western Actuarial Bureau, Secretary, NFPA Committee on Firemen's Training, and Vice-Chairman of the FDIC; and John E. Barman, Engineer, Missouri Inspection Bureau, Assistant Secretary of the FDIC.

This giraffe, provided by Lew Holland of Texas (left), symbolized the growth of attendance at FDIC meetings during the years. In 1928 eight persons held the first Conference; in 1951 attendance reached 1,119.

Chairman Vernor, promoted to honorary chief of the Memphis Fire Department, is shown here receiving the award from Chief Klinck.

Guests at the FDIC were treated to an exhibition of the large fog gun used by the Memphis Fire Department. (See FIREMEN for January, 1952). Adjustable fog gun, arranged for mobile operation, is shown here delivering 1250 gpm, supplied by three lines from a pumper connected to a hydrant on the Memphis drill grounds.

Space does not permit a listing of the speakers and the subjects covered at this Conference, one of the most important meetings of the year for members of the fire service. Readers of FIREMEN will find articles on some of the topics discussed on pages 8, 9 and 12 of this issue and pages 13 and 16 of the February FIREMEN.

Some of the topics covered included: training of fire department instructors and of firemen; use of television in fire prevention; portable pipe lines; highway fires involving transports carrying volatile liquids; commercial telephone service; fire problems of LP gas; industrial fire protection; a report of recent tests on the indirect application of water fog; and many others. There were a number of lively panel discussions, some descriptions of important fires during the year past, and numerous other talks and demonstrations pertaining to a multitude of problems of great interest to the members of the fire service attending.

Emmett Cox also received a badge from Chief Klinck designating him an honorary member of the Memphis Fire Department. One such award is made annually to an outstanding attendant at FDIC. NFPA General Manager Percy Bugbee received the first such award from Chief Klinck's father.

The Minneapolis Fire Department, headed by Chief Reynold C. Malmquist (Member NFPA), uses this vehicle to bring "fire prevention on wheels" to schools, industries, business establishments, and civic groups and to instruct junior fire departments and industrial fire brigades. The entire apparatus and equipment was supplied to the Department by the Minneapolis Savings and Loan Association.

A colorful display and demonstration of a fire prevention truck was given by members of the Minneapolis Fire Department. Here they demonstrate extinguishing methods before guests at the FDIC.

Here is an interior view of the Minneapolis demonstration unit. Mounted on a Ford chassis, it carries radio, rescue, public address, lighting and extinguishing equipment.

Another interesting display was presented by the Texas Automatic Sprinkler Company which featured this sprinkler demonstration unit. Compartment on the left has a variety of wet, and dry, pipe and deluge sprinkler systems. Fires were lighted, and as sprinkler systems went into operation, were extinguished in the compartment at right.

Industrial Fire Protection

Beginning with this issue FIREMEN *will contain a section highlighting items of interest to industrial fire brigades and to fire departments that protect communities containing industrial installations. Members are encouraged to submit ideas, pictures, and news items pertinent to the field of industrial fire protection.*

WITH the present state of emergency demanding continuous change and expansion of industrial facilities, industrial fire protection has become an increasing problem.

Organizing and training fire brigades and coordinating their functions and responsibilities with those of local fire departments is a matter of importance to both plant personnel and to fire departments protecting industrial communities.

For this reason, FIREMEN will present information concerning this phase of fire service activities. This page will be an open forum for members of fire departments and industrial fire brigades. It will continue to appear as long as there is active interest among readers.

Membership

Industrial fire brigades are eligible to join NFPA as Fire Department Members. At present 128 brigades have NFPA Membership and are taking advantage of the "six-copy" plan of distribution of FIREMEN. Chiefs and other members of NFPA Fire Departments should encourage local industrial fire brigades to enroll in NFPA to get the benefits of fire protection information.

Meeting Proposed for National Fire Brigades Association

SINCE many states are interested in an organization for industrial fire brigades, a meeting has been proposed to consider the formation of a National Fire Brigades Association. The meeting has been tentatively scheduled for March 6, at the Southern Hotel, Columbus, Ohio. Further information may be obtained from Mr. L. E. Shingledecker, Supervisor of Fire Safety, Farm Bureau Mutual Insurance Companies, 246 North High Street, Columbus 16, Ohio.

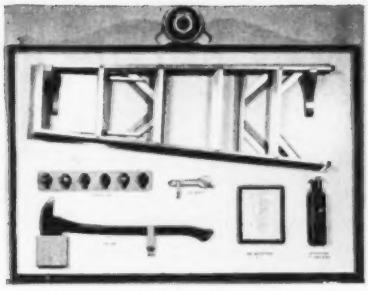
Industrial Bomb Shelters

A PUBLICATION was issued last month to help industrial executives decide what is practical with respect to bomb shelters, first aid and rescue teams, and other related features of personnel protection. The Division of Business Practices of the National Industrial Conference Board consulted with industrial executives in Britain, Germany, France, and the Low Countries. One result was the preparation of the publication on damage control, described in the November, 1951, issue of FIREMEN. The book, issued last month, is a companion volume entitled "Protecting Personnel in Wartime," 128 pages, 8½ by 11 inches, with paper cover. Requests for this publication should be sent with $4.00 for each copy to the National Industrial Conference Board, Inc., 247 Park Avenue, New York 17.

The document does not adequately treat the fire problem of shelters but is very valuable in other respects presenting, as it does, pictures and drawings of types of shelters used in the European countries and actual examples of schemes for organizing industrial plants.

Fire Record Bulletins

TWO bulletins have been published as part of a new service developed by the NFPA. "Industrial Tractors and Lift Trucks" is a 4-page illustrated bulletin summarizing a dozen fires where industrial tractors and lift trucks have been responsible. "Explosion and Fire in Naphtha Treating Plant" describes an occurrence in a large refinery. Both bulletins may be obtained for $1.00 each from the NFPA Executive Office. NFPA Members may obtain single copies without charge.



This display board of fire equipment is used by members of the industrial fire brigade of the Hughes Gun Company, operators of the Dickson Gun Plant, Houston, Texas. The plant area is divided into 22 possible locations of fire. Members of the brigade respond to these locations according to an alarm by the fire whistle. Administrative buildings, warehouses, paint and oil storage buildings, heat treating plants, and casting shops are some of the buildings protected. Electrician foremen and supervisors also respond to fire locations for each alarm.

Employee Organization for Fire Safety

NFPA Member Fire Departments protecting industrial areas should recommend to plant management personnel the publication "Employee Organization for Fire Safety." This publication discusses plant fire safety organization for peace time and civil defense organization. It describes fire inspection procedures, exit drills, evacuation plans, first aid fire fighters (fire guards), and private fire brigades.

Copies of the book may be obtained from the NFPA Executive Office, 60 Batterymarch Street, Boston 10, Massachusetts. Price is fifty cents per copy. Quantity discount for 25 copies is 25 percent; for 500 copies 33⅓ percent.

Lightning Strikes an Alcohol Tank

AN interesting report on fire fighting operations of a plant fire brigade is contained in NFPA Flammable Liquids Field Service Bulletin, Series 1952, No. 1. This is a 12-page illustrated bulletin describing an explosion and fire that occurred when lightning struck an alcohol tank. All recognized safeguards had been complied with in the design and maintenance of the tank. Copies of the bulletin may be obtained for $1.00 each from the NFPA Executive Office. NFPA Members may obtain single copies without charge.

Louisville, Ky. January 12. (*A.P. Photo*) South Dixie Warehouse. Eleven million pounds of magazine paper in rolls and a carload of baled wool were destroyed by fire that reportedly started at an oil-fired salamander. Restricted aisle space and rapid spread of flame limited fire fighting to exterior. Aluminum siding and wood roof were consumed by fire and steel framing collapsed. Loss was estimated at $1,340,000.

North Abington, Massachusetts. January 3. Crossley Block. An oil burner exploded on the second story of this 3½-story wooden frame building. Fire spread rapidly through two large corridors and a blind courtyard that was inaccessible to fire fighters. Mutual aid calls brought fire departments from 5 adjoining communities but heavy smoke prevented attack inside the building. Loss was estimated in the vicinity of $200,000. (*Photo by Stanley A. Bauman*)

(Right) Harvey, North Dakota. January 13. First State Bank and Pioneer Mercantile Corporation. An overheated incinerator is believed to have caused this fire. Volunteer fire companies from Harvey and Drake managed to get three small lines into the building but heavy smoke prevented effective fire fighting. Flames spread suddenly through the entire 2-story brick and stone building and were beyond control of fire fighting equipment on hand. Total loss was estimated at $405,000.

(Right) Cincinnati, Ohio. January 29. (*U.P. Photo*) This fire was the fifth extra-alarm fire in four days for Cincinnati fire fighters. Collapsing walls and icy footing led to injuries to 25 fire fighters, including Chief Barney Houston. Combustible contents led to a complete destruction of the 4-story brick building. Damage was estimated at $800,000.

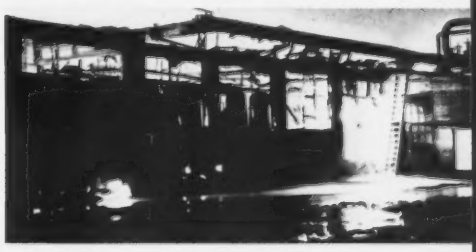
FIRES IN THE NEWS

Benton, Illinois. January 25. (*A.P. Photo*) Business block. Volunteer fire fighters from 15 towns fought this fire that started in the basement of a department store. Rapid spread involved three buildings but a fire wall and good stops saved adjoining exposures. Loss was estimated in the vicinity of $1,000,000.

(Right) Effingham, Illinois. January 24. Volunteer fire departments from Effingham, Teutopolis, Altamont, and Vandalia responded to a delayed alarm when fire started in the basement of this 2-story brick building. Fire fighters were prevented from entering the building by explosions of oil and paint containers and a rapid spread of fire. Estimated total loss was $111,600.

(Right) Hilliards, Ohio. January 3. An explosion of propane vapors released from a tank car punctured in a train wreck was followed 10 seconds later by a second explosion in the basement of a grain elevator 20 ft. from the railroad. Explosions and ensuing fire destroyed the elevator, warehouse, a grain dryer and several freight cars. Continuous explosions in a freight car containing 20 mm ammunition hindered fire fighting. Wreck occurred when an improperly loaded spool of 1-in. cable fell from an east-bound train, struck the engine of a west-bound train, unwound, and became entangled in the wheels. Loss was estimated at $684,000. (*Columbus Dispatch Photo*)

(Below) Longview, Washington. January 11. Pacific Fibre Board Plant. Water supply for fire fighting failed and by the time emergency pumping facilities could be established combustible contents of this building were beyond saving. Fire possibly started when sparks ignited a dust film on a ceiling. Estimated loss was in the vicinity of $2,000,000.



Operating Fire Department Pumpers

Maintaining Pressure

FAILURE to get the desired pressure may be due to several conditions. Here are some of the reasons:

1. Pump transmission not properly engaged. (It may be in neutral or in wrong gear, even in reverse gear.)
2. Hose layout and nozzle sizes beyond the capacity of pump to supply.
3. Water supply inadequate to supply hose layout employed.
4. Relief valve or pressure governor setting too low. The pressure control device should be adjusted at a slightly higher setting than will be needed and reset when the proper pump pressure is obtained.
5. Transfer "change-over" (pressure-volume) valve in wrong position. Slow down throttle and make change.
6. Control valve in gage line may be closed, or line may be clogged so that the gage is not giving a true report.

Pump operators should be careful to see that the pressures produced by the pump are not higher than the hose layout warrants. In general, it is good practice to provide initially not over 100 lbs. at the pump until the proper pressure calculations can be made and pressures adjusted accordingly. This will generally provide a nozzle pressure in the 40 to 60 lb. range as shown in accompanying table. (Using 2½-in. hose.)

With 100-lb. Pump Pressure (Nozzle and Pump at Same Elevation)

Nozzle Tip	Length of Line in Ft.	Nozzle Pressure	Friction Loss
1¼	200	50	50
1¼	300	40	60
1⅛	200	60	40
1⅛	300	50	50
1⅛	450	40	60
1	300	60	40
1	450	50	50
1	650	40	60

Of course, where fog nozzles requiring higher pressures are employed it may be necessary to provide an initial pressure of 150 lbs. or more. For this and other reasons it is important that the pump operator know the type of nozzle being employed as well as the length of line and elevation of the nozzle.

Pressure requirements should be calculated and provided before the pump operator attends to other routine duties of pump operation. In fact, it is important for the safety of the hose crew as well as for effective fire fighting that the operator provide proper pressure at all times that streams are in service.

Operation of Gages

In order to get efficient operation from a pumper it is necessary to understand the operation of pressure gages and the meaning of the readings they disclose. (See NFPA FIREMEN: March 1949, August 1951, October 1951.) All pumpers should be equipped with a gage showing pressure on the suction or the inlet side of the pump and one or more gages to show pressures on the discharge side of the pump.

The pressure gage or gages on the discharge side of the pump register the pressure at which the pump is discharging water. Where the pump is built to discharge at several pressure stages simultaneously, there will be a gage for each discharge pressure. Some pumps have individual discharge pressure gages for each outlet.

The pumper should be operated to give a discharge pressure which is the total of the desired nozzle pressure (usually 40 to 60 lbs. for solid streams for hand lines, 80 to 100 lbs. for heavy solid streams, and 100 lbs. for low pressure fog jets), plus the friction loss in the hose line, plus the pressure needed to overcome the difference in elevation between the pump and nozzle.

With positive displacement pumps the discharge pressure gage is usually one that registers only pressures greater than atmospheric and records such pressures in pounds per square inch. However, on many centrifugal pumps the discharge gage is a "compound gage" that registers pressures below atmospheric, sometimes called "vacuum," as well as the "positive pressure" exerted by the pump. The reason for providing a compound gage on the discharge side of a centrifugal pump is that, when drafting with a centrifugal pump, pressures are below atmospheric on both sides of the pump. This might cause distortion of a gage not built to compensate for this condition.

THE gage on the inlet or suction side of the pump is a compound gage that registers either pressures below atmospheric, as when drafting (usually shown in inches of mercury), or a pressure above atmospheric as when connected to an adequate hydrant supply. This gage tells a very important story concerning the availability of water for the pump. The pump operator must be able to interpret the meaning of readings of this gage in terms of how much more can be expected from his pumper and the hydrant or water supply.

Pump operators should have frequent practice sessions in operating their pumpers, to be thoroughly familiar with the behavior of gages under varying conditions. Of special importance is the situation when the compound gage needle on the inlet side is near the zero mark. Generally it is true that within close limits on either side of the zero reading the compound gage is not very accurate. However, the pump operator is interested in the relative reading under changing conditions. He must know the meaning of such changes.

HERE are some hints and suggestions concerning the significance of readings of the pressure gage on the discharge side of the pump:

1. Be certain that the gage is registering. If no pressure shows on the gage when it is known that the pump is engaged and filled with water, do not advance the engine throttle past a reasonable point. Doing so may give the hose line excessive pressure. (The pipe line between gage and pump may be frozen or the passageway may be obstructed.)

2. A pulsating needle may be steadied by partly closing the control valve in the line leading to this gage so that the quantity of water reaching the gage interior does not cause excessive pulsations.
3. Do not operate the pump for any appreciable period at excessive pressures, or at motor speeds above those mentioned in specifications under which the machine was bought. Excessive pressures endanger fire fighters and may cause bursting of hose or damage to the pump. Excessive motor speeds or overloads may damage the pump or engine.
4. Pump operators should recognize instantly the relationship between the pump pressure being produced and the motor revolutions necessary to develop this pressure. This can be determined by comparing the pump pressures for a hose layout with the tachometer reading required for that pressure. It is well to listen to the motor at the same time. While pump operators must be trained to operate by gage readings, nevertheless, a wide variation from the normal in the sound of a motor should be a clue to the operator that something is wrong.
5. A drop of pressure in the discharge gage may be due to several causes such as: (*a*) booster tank run dry when operating from tank; (*b*) opening of another nozzle; (*c*) bursting of hose; (*d*) obstruction in suction side of pump; (*e*) use of large nozzle tips.
6. A sharp increase in the reading on this gage may indicate that a nozzle has been shut off suddenly and the pressure control device was not properly set or did not work properly. Or possibly, a nozzle tip has been reduced in size, requiring less work of pump and engine. (Some fog nozzles discharge a rather wide variation of water quantities as the fog discharge is adjusted from a wide to a narrow pattern or from fog to straight stream. This may be expected to affect the gage readings.)
7. Some pumpers are equipped with a pressure gage on each discharge gage. Where pumps have several stages which may be used to supply lines and pressures independently, extra gages will indicate the pressure in each stage or on each outlet manifold with separate gage cocks to permit readings for individual lines. It is interesting to observe that on some centrifugal pumps the discharge pressure varies several pounds on the two sides of the machine, being greater on the side toward which the water is thrown by centrifugal force. Pumps with independent stages permit the pump to provide readily a range of pressures simultaneously, to satisfy different layouts, as with the use of small high-pressure lines and large low-pressure lines. However, a variation in pressures at the several discharge gates is possible with standard pumpers. Where there are independent gages the procedure is to operate the pump at the maximum pressure needed, then partly open each discharge gate until the pressure desired for that hose line is reached and indicated on the independent gage.

Without independent or individual gages, the procedure to follow to satisfy pressure requirements for two hose lines of different needs is as follows: (*a*) Get the correct pump pressure for the line requiring the lowest pressure. (*b*) Partly close the discharge gate on this line until the pressure gage shows a slight drop. (*c*) Raise the pressure to meet the needs of the second line.

Mattydale Hose Lay

AT the Old Forge Fire School last September (see FIREMEN for December, 1951), the Mattydale, New York, Fire Department made the astounding performance of laying a 300-ft. hydrant supply line and putting four streams in service in 18 seconds.

The four streams consisted of two high-pressure fog guns and two 1½-in. pre-connected fog lines. They were carried crosswise on top of the truck out of the way of the back step where a special 2½-in. pump intake is provided.

The Ford truck, with a 600-gallon water tank and a 500 gpm Class A 3-stage high-pressure pump, was equipped by Young Equipment Company of Buffalo. Red and green rear signal lights permit the operator to direct the hydrant man to turn the hydrant on and off. All controls are at the operator's panel.

The truck carries extra ladders on an overhead rack and has a compartment for additional 1½-in. hose. The machine is finished in a striking yellow color making it conspicuous in traffic.

Handling Hose and Ladders

Pictorial Civil Defense Edition
176 pages **$1.50**

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60 Batterymarch Street, Boston 10, Mass.

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- **Now! Corrosion no greater than *tap water!***
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To introduce you to this new *improved* FIREWATER, freight will be *prepaid* on all orders received up to April 1, 1952! Send your order in TODAY!

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Please send me the following order, *freight prepaid:*

Ship	*Per Gal.*
55 Gallon drum Firewater	$2.40
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15 Gallon drum Firewater	3.00
10 Gallon drum Firewater	3.25
5 Gallon drum Firewater	3.50
Cases Firewater (6-1's)	3.50

FREE SAMPLE

Note: Send order on your stationery.

The FIREWATER Co.
1 FIRST STREET
LOS ALTOS, CALIF.
*Trade Mark

Letters to the NFPA

Fire department examination questions are sometimes taken from data in the NFPA Handbook of Fire Protection. From time to time the NFPA Executive Office has been asked to comment on some of these and other subjects of interest to members of the fire service. Here NFPA Technical Secretary Robert S. Moulton, Editor of the NFPA Handbook of Fire Protection, answers two such letters.

Question:

Dear Sirs:

Of recent date we have received several inquiries as to whether or not an ethylene glyco base anti-freeze may be safely used as an anti-freeze in five-gallon hand water pump tank fire extinguishers.

We are unable to find any pamphlets in our office pertaining to the above and if you have any information regarding this matter we would be pleased to receive same in order that we may advise interested parties.

Thanking you in advance for your attention to this matter, I am

Yours truly,

R.A.
Deputy Fire Commissioner

Reply:

Acknowledging your letter of January 5, we recommend standard anti-freeze charges for pump tank extinguishers. These are provided by the manufacturers of the extinguishers and for the most part consist primarily of calcium chloride with corrosion-inhibiting additives.

Ethylene, diethylene or propylene glycol such as is used in anti-freeze in automobile radiators would doubtless serve to prevent the freezing of the contents of pump tanks and would probably have no adverse effect on the pump mechanism, assuming that the provisions against corrosion provided by the manufacturers for automotive use would be equally effective. However, it should be noted that all of the glycols are combustible and that in the case of a fairly concentrated solution such as would be provided to prevent freezing in very cold climates the degree of combustibility provided by the anti-freeze might be such as to reduce the extinguishing effectiveness of the solution. This is all more or less speculative and perhaps somewhat academic in view of the much lower cost of the standard calcium chloride anti-freezes. I might, however, caution against the use of ordinary commercial calcium chloride which in the absence of suitable additives is likely to corrode the extinguishers very rapidly.

Very truly yours,

ROBERT S. MOULTON,
Technical Secretary.

Question:

Sirs:

Referring to the "Handbook of Fire Protection" (10th Edition), the extinguishers recommended for lacquer (on page 271) are: carbon dioxide, dry chemical, and carbon tetrachloride.

On page 730 ". . . foam . . . is not suitable for fires involving . . . lacquer thinners . . ."

A phone call to a local paint company informs me that acquer contains from 50 to 80 percent "thinners."

Now, a recent Civil Service examination question went like this:

A tank of lacquer 4 x 12 feet well involved with fire, which of the following would be the best extinguishing agent to use:
(*a*) Regular foam.
(*b*) Special foam.
(*c*) Fog-foam applicator.
(*d*) CO_2 hand extinguishers.
(*e*) Water.

The answer they want is (c).

This does not seem to agree with the above information. Can you enlighten me?

Yours very truly,
R.A.M.

Reply:

Acknowledging your letter of January 9, I would first like to observe, as I have on various previous occasions, that the multiple choice question of the type quoted in your letter is not, in my opinion, the best way to evaluate the knowledge of a candidate or his ability to use such knowledge.

The question that you quote seems to me defective in that some of the alternatives indicate not only the medium to be used but the type of equipment, whereas item (e), Water, gives no indication of the method of application of the water. This might be by a pump tank extinguisher, by an ordinary hose nozzle of any one of a number of different sizes, by fog or water spray nozzle, by a fog applicator, or by an ordinary bucket. It makes a lot of difference in what form you use the water and how you apply it. I would say that water applied by a fog applicator might be a pretty good way of handling the fire described, provided, of course, the nozzle of the applicator is of proper size and type. However, I don't think much of the use of water applied by a bucket, for example.

Actually, assuming that conditions permitted their use, probably CO_2 hand extinguishers might be the best method for handling the fire in question. There should be a careful distinction made here between extinguisher and extinguishers as the fire is larger than the recommended size for use of a single hand CO_2 extinguisher (Handbook, page 722), but it could be handled by several CO_2 extinguishers applied simultaneously. This would presume the use of the extinguishers by men familiar with them and trained in their use, a condition which can be reasonably assumed in the case of a modern fire department but which could probably not be assumed in the case of the ordinary factory employees. In the case of a small fire, a factory employee, even without training, might be able to use a CO_2 extinguisher effectively, but it seems to me it's too much to expect that two or more ordinary factory employees could be expected to work together with the degree or coordination that would be necessary to handle a fire such as that described with CO_2 extinguishers. Thus it appears that the answer to the question depends also upon who is using the extinguishing medium as well as upon what the medium is and what equipment is used to apply it.

The advantage of carbon dioxide over the other media listed is that if it can be used successfully the lacquer in the tank is not in any way damaged and with any of the other methods of extinguishment it might be necessary to throw away the remaining contents of the tank or to put it through some reconditioning process. In this last feature still another item is involved and that is the question of the water-solubility of the particular thinners used in the lacquer. Thus it appears that still another factor is introduced and that is the quality of the particular material that is involved in the fire, there being considerable variety in the composition of various liquids which are marketed under the name of "lacquer."

Very truly yours,

ROBERT S. MOULTON,
Technical Secretary.

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New Engine
New Brakes
New Wiring
New Pump
Excellent Tires
12 Volt Twin Ignition System

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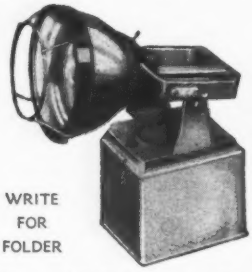

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Institute on Arson Investigation at New York University

AN Institute on Arson Investigation will be held in Vanderbilt Hall, New York University, New York City, on March 29. It will be sponsored by the Graduate Division of Public Service of the University, in cooperation with the National Board of Fire Underwriters, the Mutual Investigation Bureau, and the International Association of Arson Investigators.

The Institute is scheduled for 9:30 A.M. to 5:30 P.M. and will consist of three panels and a luncheon. Guest speakers will include A. Bruce Bielaski, National Board of Fire Underwriters; Dr. Richard Steinmetz, Mutual Investigation Bureau; James Barrett, Director, Scientific Crime Detection Laboratory; Buffalo Police Department, and others.

Further information may be obtained from the Program Chairman, Mr. Donal E. J. MacNamara, Criminological Consultant, 30 Fifth Avenue, New York City, New York.

Spring Clean-Up Campaign

FIRE departments preparing for the observance of Spring Clean-Up can make use of the material prepared by the National Fire Protection Association. Posters, stickers and other eye-catching materials may be obtained by writing to the NFPA Executive Office, 60 Batterymarch Street, Boston 10, Mass.

"Get Rid of the Trash" poster is 12 x 16 ins. in yellow and black and designed for general use. Price is $2.00 per hundred; $17.50 per thousand.

"Spring Clean-Up Time Is Here" is a questionnaire folder in yellow and black. $2.00 per hundred; $17.50 per thousand.

Spring Clean-Up Sticker. A 3⅛ gummed sticker, helpful to firemen to distribute during inspections or fund-raising campaigns. In units of one hundred: one cent each; $10.00 per thousand.

NFPA Member Departments may order 500 each of the three pieces for $25.00 at a saving of $2.50 on this quantity at the hundred rate.

Chief Engineer John C. Cost of the Philadelphia Bureau of Fire reports that his Department now has five auxiliary squad rescue cars in service. There has been an increasing demand for the services of these units, particularly by physicians. Most of the runs are for assistance to heart patients and respiratory cases. All cars are of the Chevrolet carry-all type. Each has a two-man crew and is equipped with two-way radio, and other equipment essential to emergency rescue work. Their addition releases four of the larger rescue trucks for other work.

NFPA Annual Meeting

THE 56th Annual Meeting of the NFPA will be held in New York City June 9–13. Headquarters will be the Hotel Statler. Accommodations are also available at the nearby Hotel Martinique, headquarters for many fire service clubs and organizations. All fire department members are invited to attend. Additional information on reservations and an outline of the scheduled program will appear in a future issue of FIREMEN.

Dates to Remember

Connecticut: The 11th Annual Connecticut Fire College will be held in New Haven, May 19th to 24th. The college will include sections on Fire Marshal, Fire Officer, and Firemen Training, and a new section on Industrial and Institutional Fire Protection. The final day will be combined with the New Haven Field Day demonstration.

Illinois: The 9th Annual Convention of the Illinois Association of Fire Protection Districts will be held at the Pere Marquette Hotel, Peoria, March 16–18.

Indiana: The 8th Annual Arson Investigators' Seminar will be held at Purdue University, April 28–May 2.

The 19th Annual Indiana State Fire School will also be held at Purdue University, May 26–29.

Details may be obtained from the Public Safety Institute, Purdue University, Lafayette, Indiana.

Kentucky: The 1952 Kentucky Fire School will be held at the University of Kentucky in Lexington, June 3–5. For details write to: Mr. John L. Thompson, Chairman, Kentucky Fire School Committee, Kentucky Inspection Bureau, Louisville 2, Kentucky.

Oklahoma: The 19th Annual Short Course of the Oklahoma Fire College will be held at the Short Course Center, West 6th Avenue and Walnut Street, Stillwater, April 7–11.

Pennsylvania: The 14th Annual Pennsylvania Fire School will be held at Lewistown, August 4–8. For information write to Edgar A. Spotz, Public Service Institute, P.O. Box 911, Harrisburg, Pennsylvania.

Nebraska: The Annual Nebraska State Fire School will be held at the south side station in Grand Island, Nebraska, April 20–22. Further information may be obtained from E. C. Iverson, State Fire Marshal, Lincoln, Nebraska.

Virginia: The 1952 Virginia State Fire School will be held in Norfolk, September 8–12.

Washington: The Annual Conference of the Washington State Firemen's Association will be held in Yakima, August 20–23. For reservations write to Reservation Committee, care of Yakima Fire Department, Yakima, Washington.

HOWE Fire Truck Equipment Meeting Every Service Since 1872
Centrifugal, Rotary, and Piston Pumps supplied
HOWE FIRE APPARATUS COMPANY, 1406 West 22nd Street, Anderson, Indiana

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MIDWESTERN Protective Clothing
...my men deserve the BEST!

PROTECTION
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There is no substitute for the extra protection, built-in comfort and longer wear you get by specifying Midwestern clothing. In our vast selection of rubber materials you will find the type of fabric exactly suited to your climate and needs. You can count on the softness and flexibility of the high-grade materials used to meet your most exacting requirements for lasting comfort and rugged service.

Due to government requirements for Midwestern Protective Clothing, prompt delivery will be assisted if you place your order early. For complete information, have your Midwestern dealer show you our full line. A letter to the factory will also bring you literature and material samples for your inspection.

MIDWESTERN MFG. CO., Mackinaw, Illinois
Manufacturers of the Famous MACKINAW Coats

THE "BLITZ BUGGY" FIRE FIGHTER
4-wheel Drive Willys Model
Fights All Classes of Fire - - - *Anywhere!*

Pumps fog, foam or solid stream while moving 5–20 MPH.

Carries 200 gallons of water and pumps from draft or hydrant at 150 gpm.

Built for rough going in woods, fields, ditches, steep grades - in any weather.

Approved for rural fire fighting by N. Y. State fire underwriters.

Write for details and specifications

HI-PRESSURE FOG EQUIPMENT CO. OLD FORGE, N. Y.

Radiation Monitoring

THE hazards of nuclear radiation are expected in some degree to affect fire department operations under A-bomb attacks. In an attempt to describe the extent to which fire departments may have to deal with this problem, a pamphlet was issued last month by the International Association of Fire Chiefs entitled "Radiation and Monitoring Fundamentals for the Fire Service." The book is a 56-page pamphlet, 5½ by 8½ inches, with paper cover and may be purchased from the International Association of Fire Chiefs, 22 East 38th St., New York 16, N. Y., for 75 cents.

This is a publication of the Committee on Radiological Hazards in Fire Fighting of the International Association of Fire Chiefs. Mathew M. Braidech, Research Director of the National Board of Fire Underwriters, is chairman, and W. J. Scott, Fire Marshal of the Province of Ontario, is secretary. Other members of the committee are Carl F. Dreesen, Fire Protection Engineer of the U. S. Eastern Air Defense Force; Fred Shepperd, editor of *Fire Engineering* Magazine, and Edward E. Wischer, Chief of the Milwaukee Fire Department.

A considerable portion of the text is devoted to elementary atomic physics and general features of atomic explosion. Radiation monitoring instruments available to fire departments are illustrated and there is a short section on decontamination techniques and personnel protection (principally washing up).

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QRS No. 23 flame, water, mildew resistant paint for canvas
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With a distinguished record of use by the medical services of the Armed Forces, by other governmental agencies, by hospitals, by emergency and disaster units, by industrial clinics and first-aid stations . . .

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VASELINE STERILE PETROLATUM GAUZE DRESSINGS

...always STERILE, always READY for immediate and easy application to dress a burn, an abrasion, and other surface injuries.

have been adopted by surgeons as standard procedure, by nurses as preferred matériel, by professionally-trained aid personnel as the compact, ready-made, ready-to-apply dressing of their choice.

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Specify these superior dressings in the foil-envelopes to your supplier.

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Membership Report

NFPA Fire Department Membership has increased to 1,730 fire departments and 21,805 men. This represents an increase of 22 fire departments and 175 men over the record total reported last month.

NFPA Welcomes:

California: Colfax Volunteer Fire Department, Colfax; Holtville Volunteer Fire Department, Holtville.

Connecticut: Chief Charles E. Chapman, Middlebury Volunteer Fire Department, Middlebury.

Illinois: Albion Volunteer Fire Department, Albion.

Indiana: Chief C. Grabert, Newburgh Volunteer Fire Department, Newburgh; Warsaw Volunteer Fire Department, Warsaw.

Massachusetts: Centreville Fire Department, Centreville; Lexington Fire Department, Lexington; East Lexington Fire Station, Lexington; Littleton Fire Department, Littleton; North Adams Fire Department, North Adams.

Michigan: Chief Wardell Cox, Whiteford Volunteer Fire Department No. 2, Ottawa Lake.

Nevada: Lovelock Fire Department, Lovelock.

New York: Bethpage Fire Department, Bethpage; Chief Virgil Sutherland, Branchport Fire Company, Branchport; Chief Robert G. Essler, Nunda; Defender Hose Company No. 1, Rockville Centre Fire Department, Rockville Centre.

Ohio: Deer Park Fire Department, Deer Park; Chief P. Heltman, Adams Township Volunteer Fire Department No. 3, Toledo.

Oregon: Chief Ernest C. Shipley, Cottage Grove Fire Department, Cottage Grove.

South Carolina: Chief R. B. Colvin, Greer Fire Department, Greer.

South Dakota: Chief Garle Villier, Hudson Fire Department, Hudson; Chief R. B. Wheeler, Lemmon Volunteer Fire Department, Lemmon; Chief V. L. Crusinberry, Sioux Falls Fire Department, Sioux Falls.

Wisconsin: Chief Theo. Buss, Reeseville Fire Department, Reeseville; Chief Edwin Martin, Rib Lake Volunteer Fire Department, Rib Lake.

Canada:

Nova Scotia: Bridgetown Fire Department, Bridgetown.

Ontario: Chief W. S. Seaton, Teeterville Fire Department, Teeterville.

"The Chief says to get in there fast! Get the Scott Air-Paks"

PROTECT LIVES . . . KNOCK FIRES DOWN FASTER

with Scott Air-Pak TRADE MARK BREATHING EQUIPMENT

• When the building's charged with smoke and you've got to get to the source of the fire fast . . . slip on a SCOTT AIR-PAK in seconds and start to breathe that *cool, fresh air.* No matter how hard you work, you get relaxed comfortable breathing when *your life depends on it.* There's no fogging up of masks to restrict your vision. no worry about making your voice heard by others. You'll feel safer and put those fires out faster, make those rescues quicker, when you're wearing your SCOTT AIR-PAK.

Your Scott Distributor will gladly give you a FREE DEMONSTRATION.

WRITE TODAY for illustrated bulletin 510.

ESTABLISHED IN 1922 Scott FOR SAFETY—FOR SERVICE

SAFETY EQUIPMENT DIVISION
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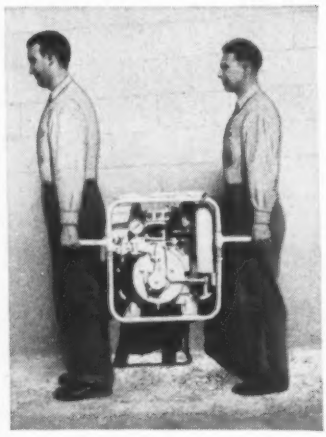

Above — Frame-mounted FZZ can be easily carried by two men. It is also available mounted on rubber cushioned steel channels, or on two truck-type wheels.

Fire Companies frequently write us telling of the many practical ways they use their portable Hale type FZZ, such as the following:

- For fighting field or forest fires from moving trucks.
- For "wetting down" and standby use, thus releasing major equipment.
- For pumping out flooded cellars and elevator shafts after fire, flood or other emergency.
- For relaying water to pump or booster tank from sources inaccessible to major Fire Pumpers.
- For factory protection in fighting fires before major equipment arrives.
- For fighting oil or other type fires requiring foam. (Built-in foam proportioner available when specified.)

The FZZ will supply from draft, 60 GPM at 90 lbs. pump pressure; and 150 GPM at 30 lbs. Can supply two capable streams through 1½-in. lines, using nozzle tips up to ½ in.

Note: Discharge Adapter can be supplied for use with 2½-in. fire hose.

Write for new folder today.
Ask for demonstration.

HALE FIRE PUMP CO.
CONSHOHOCKEN, PA.

Fire Pumps in All Standard Capacities

Testing Fire Hose

(Continued from page 12)

IF ALL the hose passes this test, a 3-ft. sample is cut from one length and subjected to increasing hydrostatic pressure until it bursts. Single-jacketed hose must withstand at least 500 psi without bursting, and double-jacketed hose must withstand at least 600 psi. The hose may be tested in the natural straight position or fastened to a frame curved to a radius of 27 in.

When the hose is lying straight, most of the bursting stress is exerted on the filler threads which go around the hose like a coiled spring. The warp threads running lengthwise of the hose withstand only the lengthwise pull exerted by pressure of the water on the coupling. When the hose is curved, the pressure is about equally divided between the fillers and warps.

In order to get a test in which the principal stress is on the warp threads, a 50-ft. length is subjected to a kink-test. For this, the length of hose is filled with water to a pressure of 10 psi, and then is kinked back sharply about 18 in. from the free end. The coupling is tied back against the hose so that the hose is held kinked while the pressure is raised to 300 psi. The hose must withstand this pressure without failure.

The inspector subjects the rubber lining of the hose to tensile strength and elongation tests. These laboratory tests are repeated at the main testing station in Chicago, so that hose from all manufacturers is tested under identical conditions. (*Here Mr. Davis showed slides illustrating other testing procedures. Some of these are shown on page 13 of this issue — ED*).

TESTING fire hose is a complicated business. It takes plenty of equipment, plus operators trained to use the equipment properly, in order to test the hose correctly. All of this equipment, plus the trained operators, are at your service when you specify labeled fire hose. You can't get this service any other way, since we do not do commercial testing of unlabeled hose. Our entire facilities are devoted to seeing to it that labeled fire hose will give you the performance you have a right to expect.

Short Course on Fire-Hazard Control

OKLAHOMA A. & M. College is offering, June 16 to June 27, inclusive, 1952, a fire hazard control short course to be conducted by R. J. Douglas, Associate Professor and head of the Fire Protection Department of the School of Technical Training. The course is for inspectors, fire department officers and industrial safety and fire protection specialists. A conference fee of $25 per person is being charged. Persons interested in the course should address Mr. M. L. Powers, Engineering and Industrial Extension, Stillwater, Okla.

FOR SALE

1 Seagrave combination pumper and hose truck, 750-gallon capacity with 100-gallon booster tank. Still in service and good condition. Demonstration if desired. Write or contact

Borough Clerk
Borough of Haledon
New Jersey

World Wide Photos

Hydrant Tyrant

Mr. Nick is the name of this squatter who seems to have more than the traditional canine fondness for hydrants. He spends his time in this manner atop a Los Angeles hydrant. Recently he defended his position against a team of city fire hydrant painters until his owners called him off long enough for the retouching job to be completed.

Philadelphia's Mobile Radio Center

PHILADELPHIA, Pennsylvania, recently acquired a mobile communications center for civil defense and other emergency use. The new unit, equipped by RCA, is housed in a truck 23 feet long and 8 feet wide and, in the rear, contains three 60-watt station transmitters for fire, police and civilian air patrol frequencies.

In the front portion, shown above, space is provided for the driver, radio command officer, and six or more radio operators. To the left are located the console for controlling the 60-watt transmitters and control units for two 30-watt transmitters.

On the right side of the truck are three transmitters and receivers operating on frequencies in the 2, 10, and 75-meter amateur bands, and a 70-watt public address system. In the rear of the truck is a 10-KW single-phase generator for supplying power for mobile operation. The truck also carries 150 feet of telephone cable for tapping into existing telephone facilities.

"I'm sorry about your house, but remember how you raved and shouted me down when I mentioned hose at the last council meeting--?"

The "NEW YORKER"
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IN LEATHER

CAIRNS HELMETS

The "CLIFTON"
(No. 900--Regulation)
IN PLASTIC

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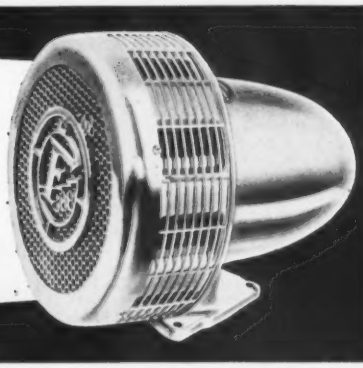

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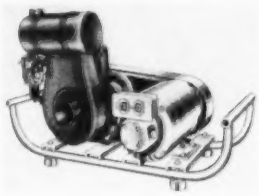
What's New In Fire Equipment?

Circul-Air Hose Dryer

The Circul-Air Corporation 575 East Milwaukee Avenue, Detroit 2, Michigan, has announced that its electro-mechanical hose dryer has recently obtained the approval of both Underwriters' Laboratories and the Canadian Standards Association. Further information may be obtained from the manufacturer at the above address.

Electric "Safety Candle" for Churches, Pageants

Because of the danger of using lighted wax candles in religious devotional services, processions and pageants, a battery lighted candle called the "Safety Candle" has been developed. Manufactured by Louis J. Lindner, 153 West 33rd Street, New York 1, New York, the electric candle offers color changes through easily inserted discs. Write to manufacturer at the above address for further information.



Portable Electric Generators

Wincharger Corporation, 2110 East 7th Street, Sioux City 2, Iowa, has developed a portable gas-engine driven electric generator, Model 1800, in three ratings — 1000, 1250, and 1350 watts at 115 volts, 60 cycles, A.C. Designed for supplying portable power tools, flood lights, and radio systems, the units may be obtained with or without engine, or with or without a universal mounting base. Free literature may be obtained from the manufacturer at the above address.

Sirens for Fire Service

The Sterling Siren Fire Alarm Company, Incorporated, Rochester, New York, manufactures a variety of sirens for fire apparatus. Models No. 20 and No. 30 sirens operate on 6 or 12 volts, D.C., have a chrome finish and are equipped with pedestal brackets for mounting. Roof brackets may be obtained at extra cost. Models No. 20 and No. 30 SIRENLITES combine the siren with a flashing red light and are furnished complete with cable and terminals, a heavy-duty foot switch for the siren and a dash switch for the automatic flashing beacon. Model "M," a general fire alarm siren is available with double or single head sirens, 3 or 5 h.p. motors operating on 220 or 440 volts, 3 phase, 60 cycle or single phase. Remote control, push button stations, street boxes and other equipment may be purchased.

New Color Fire Fighting Film Released

"Not Too Hot to Handle," a new, 18-minute, color, sound film has been released by Walter Kidde & Company, Incorporated. The picture demonstrates approved fire extinguishing equipment and procedures for Class A, B, and C fires. Among the extinguishing agents demonstrated are water, soda acid, carbon dioxide, dry chemical, foam, and vaporizing liquid. The film is available nationally through any of Kidde's six district offices (Chicago, Detroit, Philadelphia, Dallas, Atlanta, Los Angeles), or upon request to any Kidde Distributor.

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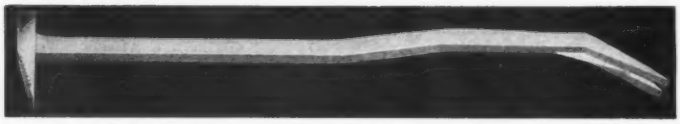
INDEX TO ADVERTISERS

	Page
Ahrens-Fox Fire Engines	31
Akron Brass Mfg. Company	2
Ansul Chemical Company	21
John Bean Division, Food Machinery and Chemical Corporation	6
Boston Woven Hose & Rubber Company	29
Cairns & Brother, Incorporated	27
Carpenter Mfg. Company	22
Chesebrough Mfg. Company, Consolidated	24
Circul-Air Corporation	22
Dari-Delite, Incorporated	24
W. S. Darley & Company	5
Federal Enterprises, Incorporated	27
Firewater Company	20
Gamewell Company	4
Hale Fire Pump Company	26
Hi-Pressure Fog Equipment Company	23
Howe Fire Apparatus Company	23
Midwestern Mfg. Company	23
Powhatan Brass & Iron Works	21
QRS Neon Corporation, Limited	24
Rockwood Sprinkler Company	3
Russell Uniform Company	28
Scott Aviation Corporation	25
D. B. Smith & Company	30
The Wooster Brass Company	28



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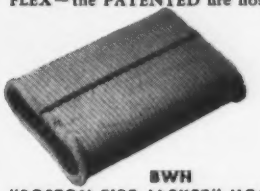

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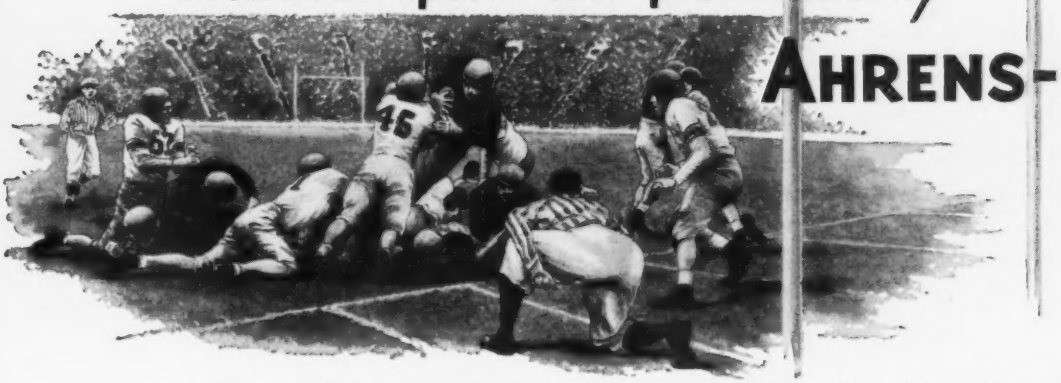

Sports officials are constantly faced with the necessity for making quick decisions. For instance — on October 25, 1947 — a great Army team — winner of 32 consecutive games — played a mediocre Columbia team. Army led 14 to 7 near the end of the first half. — Columbia's ball — 1st down on Army's 4-yard line. Lou Kusserow hit the line for three yards — making it 2nd down on the 1-yard line. But Referee Williams cancelled the play! He had gone to the Army bench to tell them how much time remained in the half — and ruled he had not authorized that the ball be put in play. With the ball on the 4-yard line again — Army held. — Was the decision right or wrong?

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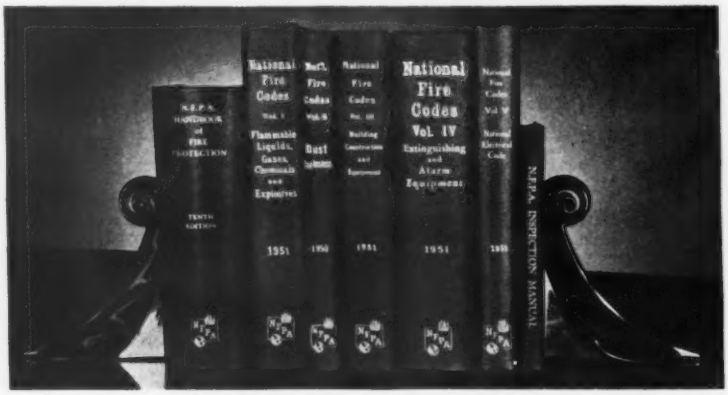

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